5. (Amended) A device according to claim 1, wherein the second parameter quantity is estimated to be substantially proportional to a change rate of lateral acceleration of the vehicle body.

6. (Amended) A device according to claim 1, wherein the means for providing the second parameter quantity provides a first phase second parameter quantity at a first time responsiveness and a second phase second parameter quantity at a second time responsiveness slower than the first time responsiveness, and the means for controlling the brake system controls the brake system such that the target deceleration is increased from the predetermined minimum value to the predetermined maximum value according to an increase of a larger one of the first and second phase parameter quantities at each moment.

REMARKS

Claims 1-6 are pending. Claims 1 and 4-6 are amended. A Substitute Abstract is provided to address minor informalities found in the originally filed Abstract. In addition, the specification is amended to address minor informalities, change a term to make it consistent with the rest of the specification, and clarify the meaning of a sentence. No new matter is entered.

The attached Appendix includes marked-up copies of each rewritten paragraph (37 C.F.R. §1.121(b)(iii)) and claim (37 C.F.R. §1.121 (c)(ii)).

Applicants appreciate the indication of allowable subject matter with respect to claims 3 and 5 provided they are rewritten to include the features of the base claim and any intervening claims. Applicants have not rewritten the claims as suggested, however, because Applicants believe that all claims are patentable.

Initially, Applicants note that four Information Disclosure Statements have been filed in this application. The first two Information Disclosure Statements have been considered by

the Examiner, who attached the Form PTO-1449 associated with each of those two Information Disclosures Statements to the Office Action, indicating that the references cited thereon have been considered. However, the Office Action does not contain any indication that the Information Disclosure Statement filed on November 30, 2001 has been considered. The fourth Information Disclosure Statement, which was filed on January 17, 2001, was not filed until after the date mailing of the Office Action. The Examiner is respectfully requested to review the Information Disclosure Statements filed on November 30, 2000 and on January 17, 2001, and to comment on them in the next Office Action.

Item 2 of the Office Action requests correction of the Summary of the Invention portion of the Specification, indicating that on pages 2 and 3, starting at line 23 on page 2, the use of claim format and language is improper. The objection is respectfully traversed.

All that is required by statute for the specification is found in 35 USC §112, first paragraph. According to that statute, the specification shall contain a written description of the invention and of the manner and process of making and using it in such full, clear and concise terms as to enable any person skilled in the art to which it pertains . . . to make and use the same. See, Reiffin v. Microsoft Corp., 54 USPQ2d 1915, 1917 (Fed. Cir., 2000). All that is required to meet the written description requirement is that it convey to one of ordinary skill in the art that the inventor invented the claimed subject matter.

What better way to ensure that the claimed language finds support in the specification than to have the very same language in the specification and the claims. That way there is no doubt about adequate support for the claimed subject matter.

37 CFR §1.73, entitled, Summary of the Invention, expressly approves of this approach by stating that "[S]uch summary should, when set forth, be commensurate with the invention as claimed . . ." By using identical language in the Summary of the Invention and

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in the claims is one very logical way to ensure that the Summary of the Invention is "commensurate with the invention as claimed."

This is especially important in the wake of recent case law, such as the decision in Gentry Gallery, Inc. v. Berkline Corp., 45 USPQ2d 1498, 1503 (Fed. Cir. 1998), cited in the Reiffin decision, noted above, which stated that the inventor's original disclosure serves to limit the permissible breadth of his later-drafted claims.

Moreover, as pointed out in Greenberg v. Ethicon Endo-Surgery Inc., 39 USPQ2d 1783 (Fed. Cir. 1996), the Summary of the Invention was indicated as containing relatively broad language merely as a shorthand way of referring to each of the structural elements of the invention. The court found no problem with this.

Accordingly, withdrawal of the objection to pages 2 and 3, starting at line 23 on page 2, for using claim format and language is respectfully requested

Applicants have rewritten this portion of the specification, however, as one continuous sentence instead of separating each clause, as was originally presented.

In item 2 of the Office Action, the specification is objected to use of the word "dumping" in line 13 on page 4, and suggests changing "dumping" to --damping--. This suggestion is appreciated, and has been followed. Applicants have also followed the helpful suggestions of the Examiner regarding emphasizing the angle "θ" and putting a space between "θdi" and "is" on page 11, line 3. The specification is amended to address these minor informalities cited in addition to others found upon review of the specification. Accordingly, withdrawal of the objections to the specification is respectfully requested.

Applicants have also amended (1) the Specification on page 3, line 4, to change "acceleration" to --deceleration--; (2) claim 1, line 10, to change "acceleration" to --deceleration--; and (3) the Abstract, line 7, to change "acceleration" to --deceleration--.

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Applicant's disclosure clearly teaches, in the first full paragraph on page 5, lines 13-17, that the means for controlling the brake system controls the brake system such that the "target deceleration is increased from a predetermined minimum value to a predetermined maximum value." (emphasis added). This is disclosed in greater detail on pages 7-9, and in Fig. 3, where the target deceleration Gxt is disclosed as having a minimum value Gxt1 which increases until it saturates to a maximum value Gxt2. Moreover, in Figs. 2, 5 and 7, only a target deceleration is calculated. Nowhere is a target acceleration calculated. Thus, these changes have been made to correct an error clearly obvious from the face of the application and, therefore, do not involve new matter.

Additionally, in the Specification, page 5, line 10, "mean" has been changed to --means--; on page 3, line 30, "value" has been changed to --value thereof--; and on page 4, line 2, "value" has been changed to --thereof, the adjustment being made--. Insertion of "thereof" in both instances refers back to "target deceleration", and insertion of --the adjustment being made-- on page 4, line 2, after insertion of "thereof" to clarify the fact that what is adjusted (page 3, line 30) is the target deceleration, and that the adjustment of the target deceleration is made "according to the magnitude of the second parameter quantity indicative of the change rate of the rolling state of the vehicle body." None of these changes involves new matter. These changes merely clarify the meaning of the sentence in which the changes are made.

In item 3 of the Office Action, claims 1, 4 and 5 are objected to for informalities such as lacking the word "the". Applicants have amended the claims in accordance with the Examiner's suggestion to the extent that the Examiner suggested inserting an article to modify "change rate." However, instead of inserting the definite article "the", as suggested, Applicants have inserted the indefinite article "a" to modify change rate, because each

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"change rate" has no antecedent. Accordingly, withdrawal of the claim objection with respect to claims 1, 4 and 5 is respectfully requested.

In item 5 of the Office Action, claims 1-6 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter that purportedly was not enabled for not fully describing the way of obtaining the roll rate. The determination of roll rate is disclosed in the specification at page 7, lines 16-17 and from page 7, line 30 to page 8, line 11. In the first place, one skilled in the art would understand the invention and what constitutes a roll rate sensor. The "roll rate sensor 38" described on page 7, line 16, and in Fig. 1, may be of any well known type. Moreover, Applicants disclose using a roll rate Rr obtained from the roll rate sensor 38 according to a formula set forth between lines 5 and 10 on page 8. Applicants also disclose, on page 8, lines 9-11, incorporating the roll rate Rr into the calculation of a roll value Vr. Additionally, what is known to one skilled in the art need not be disclosed again. Accordingly, withdrawal of the 35 U.S.C. §112, first paragraph, rejection of claims 1-6 is respectfully requested.

In item 7 of the Office Action, claims 1-6 are rejected under 35 U.S.C. §112, second paragraph, as indefinite for insufficient antecedent basis with respect to certain terms. This rejection is respectfully traversed.

In claim 1, the term "target acceleration" has been changed to --target deceleration-- to be consistent with the disclosure and to accurately define the invention. This amended terminology appears previously in claim 1. Accordingly, "target deceleration" has proper antecedent basis in claim 1.

With respect to the terminology "lateral acceleration" in claims 2, 3 and 5, claim 1, from which claims 2 and 3 depend, recites a first parameter quantity indicative of a rolling amount of a vehicle body. Claims 2 and 3 merely specify that the first parameter quantity

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indicative of a rolling amount of a vehicle body is lateral acceleration. Thus, there is proper antecedent basis for "lateral acceleration" in claims 2 and 3. With respect to the use of "lateral acceleration" in claim 5, both claims 1 and 5 (which depend from claim 1) recite a second parameter quantity. Claim 5 merely recites a characteristic of the second parameter quantity in terms of "lateral acceleration." Accordingly, there is proper antecedent basis in claim 5 for "lateral acceleration."

Accordingly, withdrawal of the 35 U.S.C. §112, second paragraph, rejection of claims 1-6 is respectfully requested.

In item 9 of the Office Action, claims 1 and 2 are rejected under 35 U.S.C. §103(a) as obvious over Kawaguchi et al. in view of Harada et al. (JP 10-278762) (corresponding to U.S. Patent No. 6,081,761). The rejection is respectfully traversed.

Kawaguchi et al., the main reference, fail to disclose a "target deceleration being increased from a predetermined minimum value to a predetermined maximum value according to an increase of the second parameter quantity", a feature recited in claims 1 and 2.

Kawaguchi et al. determine if a vehicle spin quantity exceeds a first threshold - see step S40, discussed in col. 6 and shown in Figs. 2 and 7. If that threshold is exceeded, a second test is performed in step S50, to determine if the spin quantity exceeds a second, higher, threshold. The first parameter quantity and the second parameter quantity are the <u>same spin quantity</u> in Kawaguchi et al. However, claims 1 and 2 require that they be <u>different quantities</u>. Claims 1 and require that the first parameter quantity is indicative of a <u>rolling amount</u> of the vehicle body whereas the second parameter quantity is indicative of a <u>change rate of the rolling amount</u> of the vehicle body. According to the Office Action, the first parameter quantity of Kawaguchi et al. is disclosed in col. 6, lines 16-18. That portion of

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Kawaguchi et al. (lines 13-20) indicates that a spin quantity SV is "a linear sum of the slip angle β and a slip angular velocity β d". According to the Office Action, the second parameter quantity is disclosed in col. 5, lines 27-28. However, col. 5, lines 27-28 merely mention a yaw rate sensor generating a yaw rate as one of the multiple inputs to micro-computer 62. There is no indication that yaw rate by itself is the second parameter quantity. Moreover, in view of claim 1, Kawaguchi et al.'s parameter quantity is a single quantity, which is determinative in operating the deceleration control according to two threshold values predetermined therefor.

Accordingly, Kawaguchi et al. do not teach or render obvious the claimed invention.

The Office Action cites the secondary reference, Harada et al., only to teach use of a "rolling amount" in an automatic deceleration control device.

Even if, for the sake of argument, Kawaguchi et al. using a single control parameter is so modified as to use the rolling amount of Harada et al., Kawaguchi et al. would not anticipate or render the claimed invention obvious.

Accordingly, withdrawal of the 35 U.S.C. §103 rejection of claims 1 and 2 is respectfully requested.

In item 10 of the Office Action, claims 1 and 6 are rejected under 35 U.S.C. §103(a) over Schiffmann in view of Kawaguchi, et al. The rejection is respectfully traversed.

Schiffmann is directed to a vehicle rollover sensing system. Applicants can find no discussion or disclosure in Schiffmann concerning how to control an over-rolling of a vehicle other than to state that "occupant protection measures" may be <u>deployed in a timely fashion</u> to provide added protection to occupants of a vehicle - see col. 1, lines 54-57, and in co. 8, lines 14-18.

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The Office Action indicates that Schiffmann provide a means for providing a first parameter quantity of the rolling of the vehicle in col. 4, lines 65-66. However, all that is disclosed in that portion of Schiffman is a rollover prediction algorithm 80, shown in Figs. 2A and 2B, using five inputs , 82, 84, 86, 88 and 90. The Office Action indicates that Schiffmann discloses a means for providing a second parameter of a change rate of a rolling amount of a vehicle in col. 3, lines 51-53. In col. 3, lines 51-53 merely disclose a roll angular rate sensor that measures the time rate of angular roll about the vehicle's longitudinal axis, and a pitch angular rate sensor which measures the time rate of angular pitch about the vehicle's lateral axis.

The roll angular rate sensor and the pitch angular rate sensor and a lateral accelerometer and a vertical accelerometer and a longitudinal accelerometer and their respective outputs are simply input to determine the rollover prediction algorithm 80. The rollover prediction algorithm is used to predict a current roll angle and a current pitch angles, which are compared to respective roll and pitch thresholds and an output is produced for indicating a predicted overturn condition. The determinative parameters are the current roll angle and the current pitch angle, not any of the parameters operated on by algorithm 80. There would be no motivation for one of ordinary skill in the art to eliminate the determinative factor obtained by the algorithm and arbitrarily use just one of multiple inputs to the algorithm, as suggested by the Office Action, and make that arbitrarily selected one input be a determinative parameter. The only motivation to do this is found in Applicants disclosure, and therefore, this rejection is based on impermissible hindsight.

Additionally, there is only a <u>single roll angle threshold</u> and a <u>single pitch angle threshold</u> determined by Schiffmann, not separate predetermined maximum and predetermined minimum thresholds, as recited. Moreover, Schiffmann does not determine a

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first parameter quantity which is indicative of a <u>rolling amount</u> of the vehicle body and a second parameter quantity which is indicative of a <u>change rate of the rolling amount</u> of the vehicle body where a target deceleration is addressed or contemplated. Nor does Schiffmann disclose a target deceleration increased from a predetermined minimum value to a predetermined maximum value at all, let alone "according to an increase of the second parameter quantity, as recited. Schiffmann only estimates a roll angle and a pitch angle.

Therefore, Schiffmann does not anticipate or render obvious the claimed invention.

The Office Action asserts that in, view of Kawaguchi et al., it would be obvious to modify Schiffmann to deploy a deceleration mechanism as taught by Kawaguchi et al. to prevent an actual rollover.

Applicants respectfully submit that there would not be a proper motivation to combine these references. Schiffmann talks only about "deploying" occupant protection measures. Such measures could be limited to mechanical devices, such as air bags. This reference combination finds its motivation solely in Applicants' disclosure. It is based on impermissible hindsight, and is not based on what the teachings of these two references would convey to one of ordinary skill in the art.

Even if the references were combined, there is no indication of whether one would use the current roll angle estimate or the current pitch angle estimate or both to trigger the protective measures of Kawaguchi et al. Furthermore, as pointed out above, Kawaguchi et al. use the same quantity, not different quantities as recited, to set the different thresholds for a target deceleration. The reference combination would definitely not result in the claimed invention.

Accordingly, withdrawal of the 35 U.S.C. §103 rejection of claims 1 and 6 is respectfully requested.

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In item 11 of the Office Action, claim 4 is rejected under 35 U.S.C. §103(a) as unpatentable over Kawaguchi, et al, in view of Harada, et al (JP 10-278762) (corresponding to U.S. Patent No. 6,081,761) as applied to claim 1, and further in view of Ikemoto et al (U.S. Patent No. 4,807,128). This rejection is respectfully traversed.

The Kawaguchi et al.- Harada et al. reference combination fails to render claim 1 unpatentable for the reasons stated above. The Office Action asserts that because Ikemoto et al. teach, in col. 9, lines 30-32 that yaw rate is computed based on steering angle, it would be obvious to one of ordinary skill in the art to make the second parameter proportional to the change rate of steering angle to provide a threshold for promoting increased acceleration.

The Office Action has provided no motivation for one of ordinary skill in the art to modify Kawaguchi et al. - Harada et al. to change the second threshold determining parameter to make it different from the first when Kawaguchi et al clearly use the same threshold. The only teaching to make such a modification comes from Applicants' own disclosure, not the applied art.

Moreover, because Kawaguchi et al. and Harada et al. use a variety of sensed data as input to their devices to compute the a single value to use to control braking, there is no motivation for them to abandon their teachings to pluck a single sensed input - change of rate of steering angle - and make it the second parameter. That would drastically change how their systems operate. There is no motivation in either reference to do this.

Ikemoto et al. merely measure the rate of change of the steering angle as one of any inputs to predict the roll angle of the vehicle. Neither Kawaguchi et al. nor Harada et al. include such a parameter in their devices. Even if, for the sake of argument, Ikemoto et al.'s teachings were combined with those of Kawaguchi et al. and Harada et al., the change of rate of steering angle would be just one more parameter to input to the quantity SV computed by

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the Kawaguchi et al.- Harada et al. reference combination, and the resulting reference combination would still be limited to computing a single quantity for both thresholds.

Accordingly, the Kawaguchi et al. - Harada et al. - Ikemoto et al. reference combination does not render the claimed invention obvious, and withdrawal of the 35 U.S.C. §103 rejection of claim 4 is respectfully requested.

For all of the foregoing reasons, reconsideration of the application is respectfully requested. It is submitted that the claims presented pose no 35 U.S.C. §112 issues and patentably distinguish over the art applied. Accordingly, allowance of claims 1-6 is respectfully solicited.

Should the Examiner determine that anything further is desirable to place the application in even better form for allowance, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Respectfully submitted,

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Attachments:
Substitute Abstract
Appendix

JAO:RJW

Date: March 13, 2001

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P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE
AUTHORIZATION
Please grant any extension
necessary for entry;
Charge any fee due to our
Deposit Account No. 15-0461

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APPENDIX

Changes to Specification:

The following is a marked-up version of the amended paragraphs:

Page 2, line 23 through page 3, line 6:

According to the present invention, the above-mentioned object is accomplished by a device for controlling an over-rolling of a vehicle having a vehicle body, wheels, a steering system and a brake system, the device comprising~~:~~

means for providing a first parameter quantity indicative of a rolling amount of the vehicle body,

means for providing a second parameter quantity indicative of a change rate of the rolling amount of the vehicle body, and

means for controlling the brake system such that the brake system is actuated to accomplish a target deceleration of the vehicle when the first parameter quantity exceeds a threshold value predetermined therefor, the target deceleration ~~acceleration~~ being increased from a predetermined minimum value to a predetermined maximum value according to an increase of the second parameter quantity.

Pages 3, line 26 to page 4, line 7, delete the current paragraph and insert therefor:

Then, according to the above-mentioned construction, when the brake system was once put into operation for an anti-rolling-over control, the brake system is operated to accomplish a target deceleration of the vehicle that is adjusted between a predetermined minimum value thereof which may allow an early actuation of the brake system relative to the actual rolling state of the vehicle body and a predetermined maximum value thereof, the adjustment being made according to the magnitude of the second parameter quantity indicative of the change rate of the rolling state of the vehicle body. The change rate of the

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rolling state of the vehicle body predicts an increase or a decrease of a rolling angle of the vehicle body caused by the centrifugal force applied thereto in a turn running of the vehicle.

Page 4, lines 8-15:

Therefore when the brake system put into its operation at a relatively early stage of a rolling according to a judgment by the first parameter quantity is controlled to increase its actuation strength from a predetermined minimum value to a predetermined maximum value according to an increase of the second parameter quantity, the vehicle is applied with an anti-rolling over control in a ~~dumping~~ damping manner over a substantial range before the final limit of roll angle at which the prior art anti-rolling over control is abruptly actuated.

Page 7, lines 11-23:

Wheel rotation speed sensors 32FL, 32FR, 32RL and 32RR are provided to detect wheel rotation speed of each of the front left, front right, rear left and rear right wheels. A steering angle sensor 34 is provided to detect the steering angle ~~θ~~ θ effected by a rotation of the steering wheel 14 by a driver. A lateral acceleration sensor 36 is provided to detect lateral acceleration Gy applied to the vehicle body. A roll rate sensor 38 is provided to detect a roll rate Rr of the vehicle body. The output of the wheel speed sensors 32FL-32RR, the steering angle sensor 34, the lateral acceleration sensor 36 and the roll rate sensor 38 are all supplied to the electric control means 30, which conduct control calculations for controlling an over-rolling of the vehicle body as described in detail hereinbelow and dispatch a control signal to the oil hydraulic circuit 22 for automatically controlling the brake system for the over-rolling control according to the present invention.

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Page 8, lines 19-28:

When the answer of step 30 is yes, the control proceeds to step 50, and a change rate $\cancel{\theta}\underline{\theta}$d of the steering angle $\cancel{\theta}\underline{\theta}$ obtained from the steering angle sensor 34 is calculated as the second parameter quantity.

In step 60, a target deceleration Gxt for decelerating the vehicle is calculated based upon the steering angle change rate $\cancel{\theta}\underline{\theta}$d by referring to a map such as shown in Fig. 3. As will be noted in Fig. 3, the target deceleration Gxt has a minimum value Gxt1, and when the steering angle change rate $\cancel{\theta}\underline{\theta}$d increases beyond $\cancel{\theta}\underline{\theta}$d1, it increases along with increase of the value of $\cancel{\theta}\underline{\theta}$d until it saturates to a maximum value Gxt2 when the steering angle change rate $\cancel{\theta}\underline{\theta}$d increases beyond $\cancel{\theta}\underline{\theta}$d2.

Page 10, line 6 - page 11, line 15:

Figs. 4A and 4B are graphs showing how the target deceleration Gxt changes according to various manner of changes of the steering angle $\cancel{\theta}\underline{\theta}$ when the target deceleration Gxt is calculated according to the map of Fig. 3.

Fig. 5 shows a part of a flowchart which may be substituted for steps 50 and 60 of Fig. 2. According to this modification, subsequent to step 50, in step 52, a filtered change rate $\cancel{\theta}\underline{\theta}$df of the steering angle $\cancel{\theta}\underline{\theta}$ is calculated such that the filtered change rate $\cancel{\theta}\underline{\theta}$df is delayed relative to the change rate $\cancel{\theta}\underline{\theta}$d in a manner of representing an inertial delay of the vehicle body in its rolling movement relative to the action of the lateral force applied thereto.

In step 54, a larger one of the change rate $\cancel{\theta}\underline{\theta}$d and the filtered change rate $\cancel{\theta}\underline{\theta}$df is calculated as a larger value $\cancel{\theta}\underline{\theta}$dl.

Then, in step 60, the target deceleration Gxt is calculated based upon the larger value $\cancel{\theta}\underline{\theta}$dl by looking up the map of Fig. 3.

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The effect available by the modification of Fig. 5 will be appreciated from Figs. 6A-6E showing an example of the progress of the over-rolling control according to the present invention. It is assumed that the steering angle change rate ~~θ~~θd changes as shown in Fig. 6A. For the convenience of simplicity, it is assumed that the braking for the over-rolling control is applied substantially equally to a pair of rear wheels. Then, regardless of the steering direction of the steering system, the braking forces are equally applied to the rear wheels. Therefore, such a change of the steering angle change rate ~~θ~~θd as shown in Fig. 6A may be processed as shown in Fig. 6B, as if the steering angle change rate ~~θ~~θd is processed in its absolute value.

The filtered change rate ~~θ~~θdf calculated in step 52 is generated from the change rate ~~θ~~θd in a manner such as shown by a solid line in Fig. 6C relative to the change rage ~~θ~~θd shown by a phantom line. Then, the larger value ~~θdlis~~θdl is calculated by step 54 as shown in Fig. 6D. Therefore, when ~~θ~~θd1 and ~~θ~~θd2 bordering the range of gradual increase of the target deceleration Gxt relative to the increase of the steering angle change rate ~~θ~~θd or ~~θ~~θdl with its minimum value range and its maximum value range are of the levels shown by two dot lines in Fig. 6D, the target deceleration Gxt will be calculated as shown by solid lines in Fig. 6E, in contrast to the performance partly shown by phantom lines in Fig. 6E to be available when the control is conducted only based upon the steering angle change rate ~~θ~~θd obtained in step 50. As will be appreciated from Fig. 6E, when the steering angle change rate ~~θ~~θd is so alternately changed as shown in Fig. 6A, the target deceleration Gxt is calculated to be more desirably adapted to an inertialy oscillatorily rolling movement of the vehicle body by such steps as 52 and 54 being incorporated.

Changes to Claims:

The following is a marked-up version of the amended claims.

1. (Amended) A device for controlling an over-rolling of a vehicle having a vehicle body, wheels, a steering system, and a brake system, the device comprising:

means for providing a first parameter quantity indicative of a rolling amount of the vehicle body,

means for providing a second parameter quantity indicative of a change rate of the rolling amount of the vehicle body, and

means for controlling the brake system such that the brake system is actuated to accomplish a target deceleration of the vehicle when the first parameter quantity exceeds a threshold value predetermined therefor, the target deceleration ~~acceleration~~ being increased from a predetermined minimum value to a predetermined maximum value according to an increase of the second parameter quantity.

4. (Amended) A device according to claim 1, wherein the second parameter quantity is estimated to be substantially proportional to a change rate of steering angle effected by the steering system of the vehicle.

5. (Amended) A device according to claim 1, wherein the second parameter quantity is estimated to be substantially proportional to a change rate of lateral acceleration of the vehicle body.

6. (Amended) A device according to claim 1, wherein the ~~mean~~ means for providing the second parameter quantity ~~provide~~ provides a first phase second parameter quantity at a first time responsiveness and a second phase second parameter quantity at a second time responsiveness slower than the first time responsiveness, and the means for controlling the brake system ~~control~~ controls the brake system such that the target

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deceleration is increased from the predetermined minimum value to the predetermined maximum value according to an increase of a larger one of the first and second phase parameter quantities at each moment.

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